

Ship 08.05.13

Dart Aerospace Ltd.

Date: Monday, 12/05/2008 3:24:56 PM  
User: Linda Lacelle

# Process Sheet

Customer	: CU-DAR001	Drawing Name	: MIRROR ARM
Job Number	: 39208		
Estimate Number	: 10335		
P.O. Number	:	Part Number	: D2010104
This Issue	: 12/05/2008	S.O. No. :	Drawing Number : D2010 REV. C2
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: / /	Type	: SMALL /MED FAB
Previous Run	: 38796	Drawing Revision	: C2
		Material	:
Written By	:	Due Date	: 19/05/2008
Checked & Approved By	:	Qty:	1 Um: Each
Comment	: Est A 04.02.17 New issue KJ/JLM		

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	M304TR0500W035 049	304 RD Tube .500 x .035W
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Comment: Qty.: 1.5750 f(s)/Unit Total : 1.5750 f(s)

Material: 304/316 SS tubing 0.500" Dia. x 0.035" wall  
(M304TR0500W035)

Batch No:

049 per attached email  
(deviation)

2.0	BRAKE NC	NC BRAKE
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Comment: BRAKE NC

Punch per Dwg. D2010-104 and Spec Control Dwg.D2727  
Identify as D2010-104

GA manual fabric

M 107518

ml 08/05/12 x1

3.0	SMALL FAB 1	SMALL & MEDIUM FAB RESOURCE 1
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Comment: SMALL & MEDIUM FAB RESOURCE 1

1- Bend as per Dwg D2010 using bending Jig D2010-104T2  
2- Deburr

ml 08/05/13 x1

4.0	D2057	Plug
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Plug  
batch: B 34366

ml 08/05/13 x1

5.0	SMALL FAB 1	SMALL & MEDIUM FAB RESOURCE 1
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Comment: SMALL & MEDIUM FAB RESOURCE 1

1- flare before installing plug as per dwg D2010

2- Install D2057 plug as per Dwg D2010

ml 08/05/13 x1

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
08.05.12	1	USE $\phi 0.500 \times 0.049$ WALL MAT'L INSTEAD OF 0.035" WALL				UP 08.05.12 P 08.05.12	08.05.13	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 12/05/2008 3:24:56 PM  
User: Linda Lacelle

## Process Sheet

Customer: CU-DAR001

Drawing Name: MIRROR ARM

Job Number: 39208

Part Number: D2010104

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 08/05/13 (X1)

7.0

POWDER COATING

POWDER COATING



m 100700



Comment: POWDER COATING

Powder Coat Black Sandtex (Ref: 4.3.5.7) as per QSI 005 4.3

START TIME:

1:00

OVEN TEMPERATURE:

320

FINISH TIME:

1:30

FX 08/05/13 (P)

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT

m-1

(1X) 08/05/13

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location:

5T228

SS 08/05/14 (X1)

10.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

08/05/14

Job Completion



u 08/05/14

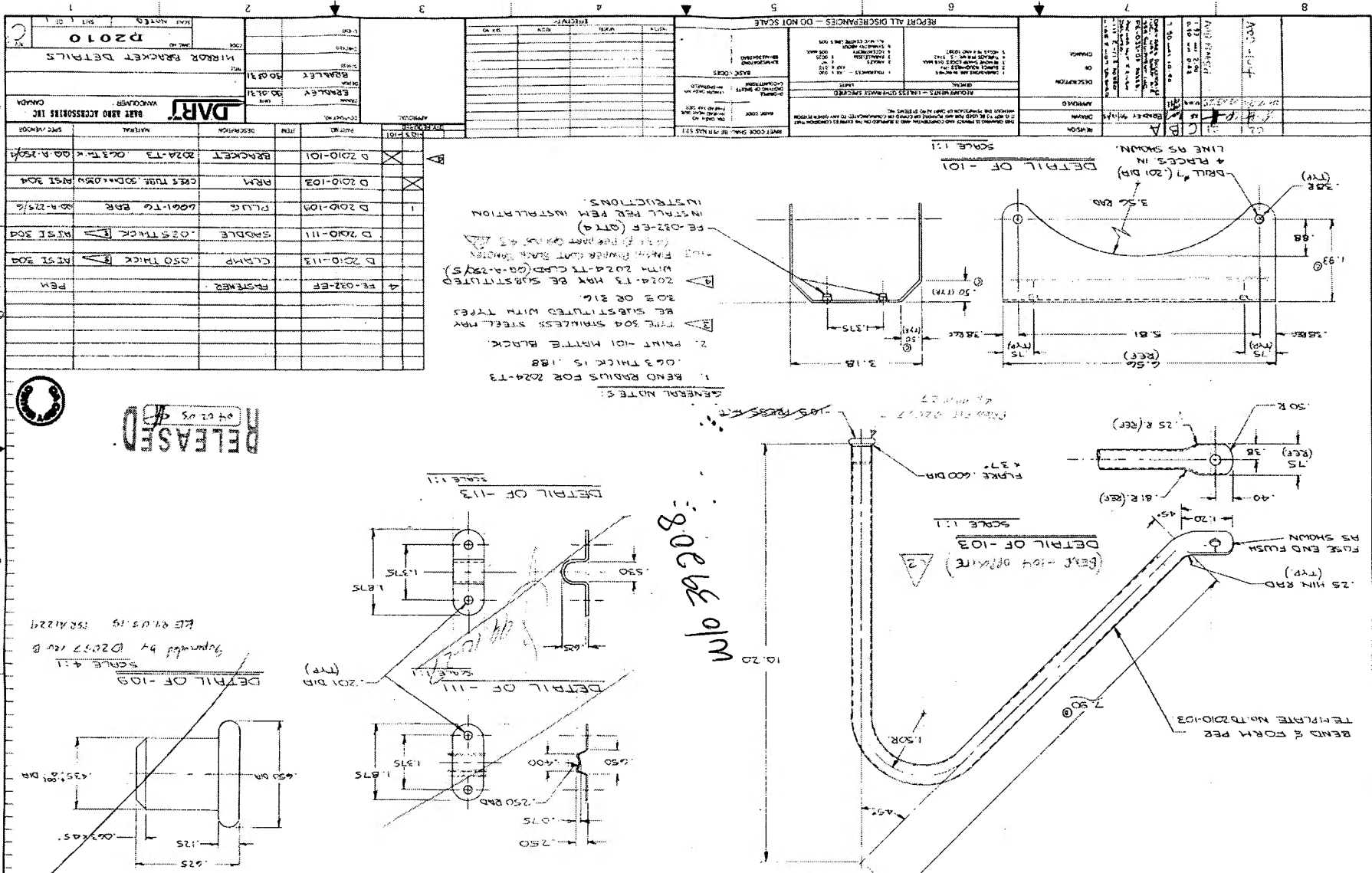
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



**L Lacelle**

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**From:** Bill Beckett [bbeckett@dartaero.com]  
**Sent:** May 12, 2008 3:16 PM  
**To:** 'L Lacelle'  
**Cc:** 'Sian Willems'; 'Dan Stow'; 'Chris Provencal'; 'David Shepherd'; 'Mike Petsche'  
**Subject:** FW: R44 Mirror arm D2010-104

Linda,  
Please make one of these up ASAP. I would like to ship as a no-charge to Canadian tomorrow.  
Thanks,  
Bill

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**From:** David Shepherd [mailto:dshepherd@dartaero.com]  
**Sent:** May 12, 2008 2:28 PM  
**To:** 'Chris Provencal'; 'Mike Petsche'  
**Cc:** 'Peter Hum'; 'Bill Beckett'  
**Subject:** RE: R44 Mirror arm D2010-104

This deviation is acceptable.

David

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**From:** Chris Provencal [mailto:cprovencal@dartaero.com]  
**Sent:** Monday, May 12, 2008 11:55 AM  
**To:** 'Mike Petsche'; David Shepherd (David Shepherd)  
**Cc:** Peter Hum; Bill Beckett  
**Subject:** RE: R44 Mirror arm D2010-104

David,

If we make a tube with 0.049" wall, can we sign this off as a deviation on the w/o? That's the quickest way to get it out the door.

If this will be a permanent change we'll eventually need a new dwg and a new CHG #.

-Chris

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**From:** Mike Petsche [mailto:mpetsche@dartaero.com]  
**Sent:** May 12, 2008 9:36 AM  
**To:** 'Bill Beckett'; 'Dan Stow'; 'Chris Provencal'  
**Cc:** 'L Lacelle'; 'David Shepherd'; 'Peter Hum'  
**Subject:** RE: R44 Mirror arm D2010-104

I assume someone's rasing a new NCR.....We had one open from the last time this haapened but we never ended up getting broken part back. Pretty sure we ended up shutting it down.

It should be directed to Peter.

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12/05/2008

**From:** Bill Beckett [mailto:bbeckett@dartaero.com]  
**Sent:** May 12, 2008 9:27 AM  
**To:** 'Dan Stow'; 'Mike Petsche'; 'Chris Provencal'  
**Cc:** 'L Lacelle'; 'David Shepherd'  
**Subject:** RE: R44 Mirror arm D2010-104

Dan - Yup, let's send him a replacement mirror arm, but I don't want to send out something that has a good chance of failing.

Chris - I suggest we make an arm with 0.049" wall vs. the 0.035" called up on the drawing, and that we sign this off as a deviation. If this is acceptable, please advise Linda ASAP.

Mike - we need to come up with a permanent solution to this issue ASAP - I believe this will apply to the R22 and MD500 as well.

Bill

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**From:** Dan Stow [mailto:dstow@dartaero.com]  
**Sent:** May 12, 2008 8:05 AM  
**To:** Bill Beckett (Bill Beckett)  
**Subject:** FW: R44 Mirror arm D2010-104  
**Importance:** High

Bill,

I sent you this email last week. I am sending Russ to CHC today to pick up the skid and I need to know if you would like to send Claude a new R44 mirror arm and pick up the one that is cracked.

Dan Stow  
Technical Support  
Dart Aerospace  
Tel: 613.632.5200  
Cell:613.676.0992  
dstow@dartaero.com

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**From:** CBoule@canadianhelicopters.com [mailto:CBoule@canadianhelicopters.com]  
**Sent:** May 8, 2008 10:04 AM  
**To:** Dan Stow  
**Subject:** RE: R44 Mirror arm D2010-104

Hi Dan

We have few that cracked.

I have in my hand one the cracked strut, can I shipped it to your attention , have your Engineer group to look at it for a fix.

Claude Boulé  
Chief Engineer, VFR, Qc/ On/ Nb.  
Tel: 450-452-3025  
Fax: 450-452-2483

12/05/2008

cboule@canadianhelicopters.com

"Dan Stow" <dstow@dartaero.com>

To <CBoule@canadianhelicopters.com>

cc

20/12/2007 04:15 PM

Subject RE: R44 Mirror arm D2010-104

Hi Claude,

I have heard about this problem once before and I thought that it might be an isolated incident... I guess not. I will bring this to the attention of the design team. If you could please supply me with the Batch # of the mirror assembly and a shipping address I will send out a new arm ASAP.

Thanks for the feedback.

Dan Stow  
Technical Support  
Dart Aerospace  
Tel: 613.632.5200  
Cell: 613.676.0992  
dstow@dartaero.com

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**From:** CBoule@canadianhelicopters.com [mailto:CBoule@canadianhelicopters.com]  
**Sent:** December 20, 2007 3:53 PM  
**To:** dstow@dartaero.com  
**Subject:** R44 Mirror arm D2010-104

Hi

We have been replacing the D2010-104 due to crack at the mirror attachment.

It is a weak point of the design.

See attached pictures.

Were you aware about This defect?

Claude Boulé  
Tel: 450-452-3025  
Fax: 450-452-2483

12/05/2008